

Title (en)

RARE-EARTH DOPED THERMAL BARRIER COATING BOND COAT FOR THERMALLY GROWN OXIDE LUMINESCENCE SENSING, AND INCLUDING TEMPERATURE MONITORING AND MEASURING A TEMPERATURE GRADIENT

Title (de)

MIT SELTENEN ERDEN DOTIERTE WÄRMEDÄMMSCHICHT FÜR THERMISCH GEWACHSENE OXID-LUMINESZENZMESSUNG, EINSCHLIESSLICH TEMPERATURÜBERWACHUNG UND MESSUNG EINES TEMPERATURGRADIENTEN

Title (fr)

REVÊTEMENT DE LIAISON DE REVÊTEMENT DE BARRIÈRE THERMIQUE DOPÉE AUX TERRES RARES POUR LA DÉTECTION DE LUMINESCENCE D'OXYDE À CROISSANCE THERMIQUE, ET COMPRENANT LA SURVEILLANCE DE TEMPÉRATURE ET LA MESURE D'UN GRADIENT DE TEMPÉRATURE

Publication

EP 4065943 A2 20221005 (EN)

Application

EP 20878037 A 20201007

Priority

- US 201962940963 P 20191127
- US 201962944390 P 20191206
- US 202017034156 A 20200928
- US 202017034065 A 20200928
- US 202017034098 A 20200928
- US 2020054466 W 20201007

Abstract (en)

[origin: WO2021133454A2] A thermal barrier coated component includes a thermal barrier coating (TBC) applied onto the substrate. A metallic bond coat layer includes rare-earth luminescent dopants. A temperature sensing thermally grown oxide (TGO) layer is formed at the interface of the bond coat layer and ceramic top coat layer, and includes grown rare-earth luminescent ions migrated from the metallic bond coat layer in an amount sufficient to enable luminescence sensing of the TGO layer for real-time phosphor thermometry temperature measurements. A phosphor thermometry device determines luminescence lifetime decay and intensity variations for first and second rare-earth luminescent dopants and correlates to a temperature value for temperature monitoring of the TBC. A temperature gradient is measured across the TBC.

IPC 8 full level

G01K 11/20 (2006.01); **C09K 11/77** (2006.01); **C23C 28/00** (2006.01); **G01K 13/08** (2006.01)

CPC (source: EP)

C09K 11/7768 (2013.01); **C09K 11/7787** (2013.01); **C23C 28/3215** (2013.01); **C23C 28/345** (2013.01); **C23C 28/3455** (2013.01); **G01K 11/20** (2013.01); **G01K 13/08** (2013.01)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

WO 2021133454 A2 20210701; **WO 2021133454 A3 20210819**; EP 4065943 A2 20221005; JP 2023504040 A 20230201; JP 7448258 B2 20240312

DOCDB simple family (application)

US 2020054466 W 20201007; EP 20878037 A 20201007; JP 2022530879 A 20201007